

Montgomery County Public Schools

School-Eco Response Team (SERT)

**Energy Conservation Success
through Behavior Modification**

www.montgomeryschoolsmd.org/departments/facilities/greenschoolsfocus/sert.shtm

School Eco-Response Team



■ Mission Statement

The SERT Program instills environmental stewardship and conserves resources in MCPS through system-wide resource conservation training, rebate and incentive programs for saving energy, recycling, and leadership in future school energy and environmental design—"because good planets are hard to find."

School Eco-Response Team



Sounds simple. But, in a world rapidly running out of natural resources, nothing could be more important.

As a public school system our facilities have to model the importance of conservation while at the same time providing a safe and healthy environment.

Waste not. Want not.

SERT Program

Waste not

Want not

because good planets are hard to find

MONTGOMERY COUNTY PUBLIC SCHOOLS

Published by the Department of Communications for the
Department of Facilities Management
2987.05 • ELECTRONIC GRAPHICS & PUBLISHING SERVICES • 2K • 7.05

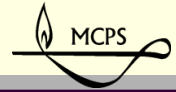
School Eco-Response Team



- Energy Conservation – Keys to Success
 - Behavior Modification
 - Engaging Employees and Management
 - Marketing a Successful Energy Conservation Program

- MCPS – Management Strategies to encourage a culture of conservation
 - Magic Triangle
 - Relationships, Results & Processes
 - Transparency, Accountability, and Responsiveness

School Eco-Response Team



- Magic Triangle
 - Identify the triangle – action plan
 - Promote it, model it ,celebrate it



SERT Facilitators



- Following industry best practices, energy facilitators and supporting staff visit each school multiple times over the school year, not just during school hours, but during evenings and weekends, to collect data on energy that is being wasted and facilitate changes in behavior.

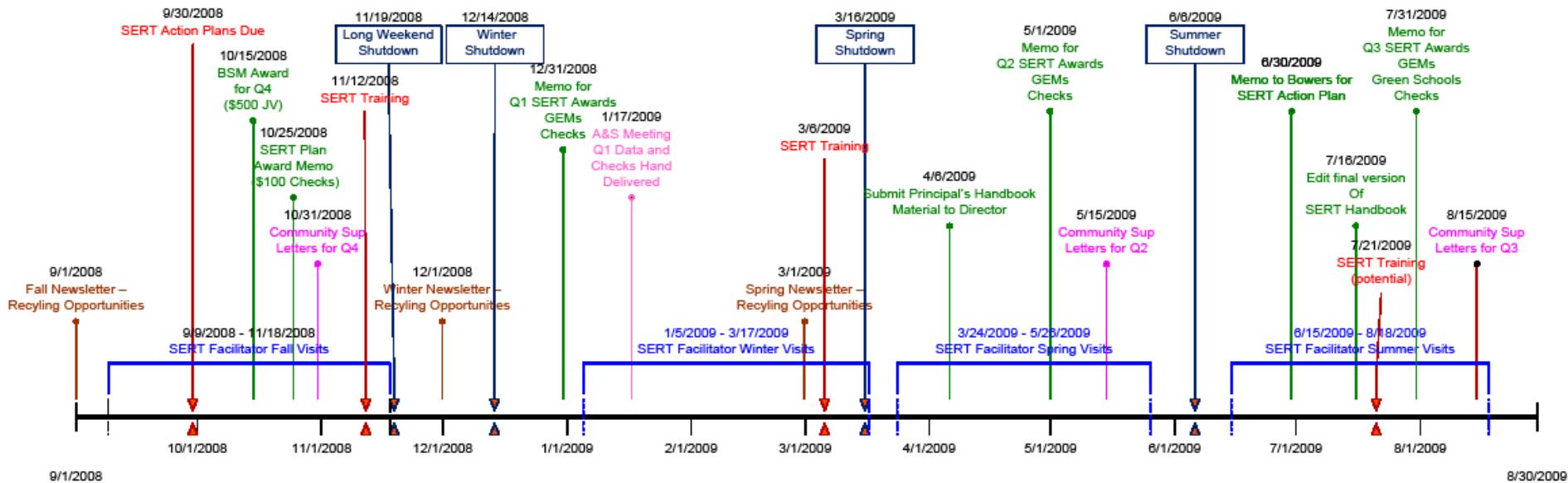


SERT Facilitators – Data Visits



- Monitoring Energy Aware Behavior
 - Unoccupied spaces
 - Toggle lighting
 - Alternative lighting options
 - Manual Shut Down!
 - Long Weekend Shut Downs
 - Vending machines – plug loads
 - Preserving the building envelope
 - Reporting HVAC issues – avoid space heaters and fans (additional plug loads)

School Eco-Response Team



Timelines for synergy with other programs provide an alignment structure, a guideline for process development, and identify initiatives in need of process development to enhance efficiency and productivity.

Engaging Employees and Management



■ Relationships

■ Identifying Team Members

- SERT Action Plan – Marketing/Engaging/Behavior
 - List of employees identified to participate on team – appointed by leadership
 - Commit to energy conservation strategies* (behavioral) in user friendly format with contact information
- Provide Training to Employees
 - Electronic
 - Classroom

■ Celebrate Accomplishments

*See SERT Action Plan Form 201-10

Engaging Employees and Management



■ Processes

- Provide team/employees with clear expectations (roll-out – build the proper infrastructure FIRST)
- Develop structure for timely feedback (data)
- Reinforce and recognize those who succeed through following processes or streamlining processes to increase efficiency
- Use guidelines of program to allow flexibility for groups to develop in-house processes

Engaging Employees and Management



■ Results

- Accessible, Accurate, Timely Data (Feedback)
- Comparative Analysis – Impact of Behavioral Changes
- Share Results w/Leadership and Participants
 - Visibility counts
 - Newsletters, public service announcements, employee lounges

Engaging Employees and Management



Technology – Energy Efficiency



- **Lowest Wattage 4' T8 in the Industry**

30,000 hours rated average life versus 20,000 standard

- **25 Watt T8 Lamp vs. Standard F32T8 Lamp**

- Save 7 watts per lamp instantly and up to 25% in energy costs

- Save \$27.00 in energy costs over the rated average lamp life

- Save \$175,000 per High School over life

- Installed Cost Only \$4.50 per lamp; 1.6 Year Payback

Peak Load Curtailment

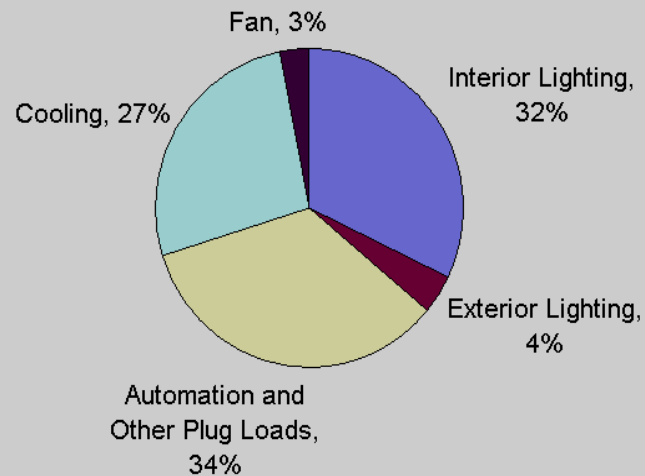


- Schools 3:30 – 5:00
 - Shut down unoccupied spaces
 - Lighting
 - Computers
 - Appliances
 - HVAC
 - Summer Shut Down
 - Blinds
 - Equipment
 - Preserving the envelope
 - Lighting and plug loads
 - Savings on Peak Load Charges for 2009 projected at \$636,000 + kWh savings

Typical MCPS Building Electrical Use



MCPS Electrical Use



- 1/3 is lighting
- 1/3 Wall Plugs
- 1/3 Cooling & Heating

Energy Aware Behavior

Standard Classroom Lighting



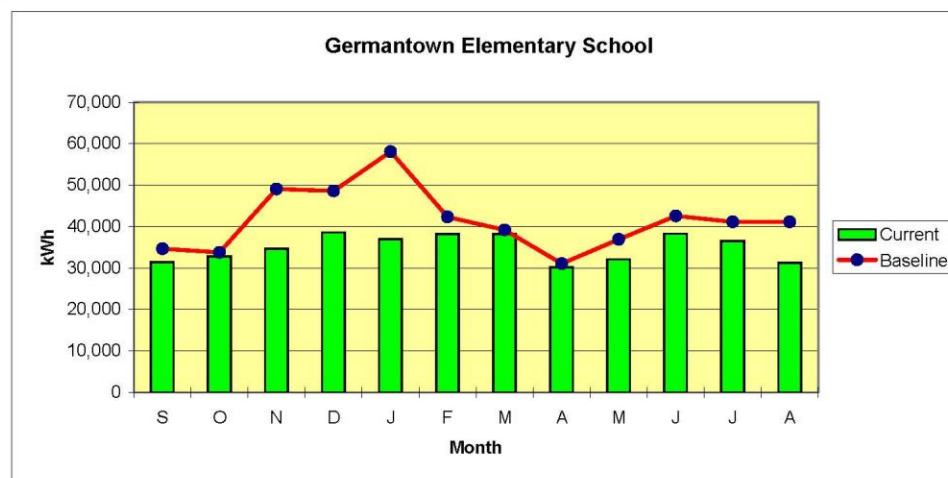
Task Lighting



Results - Data

**Germantown Elementary School
Electrical Consumption (kWh)
FY07 School Year (2006-2007) vs. Baseline Year**

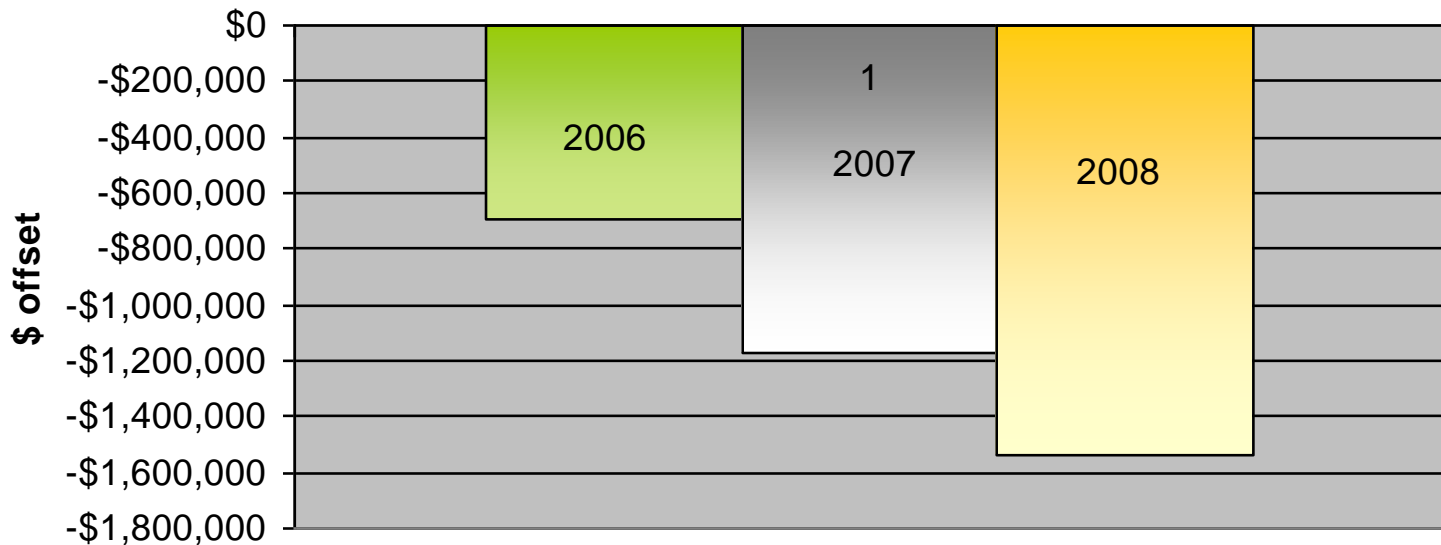
Month	Current	Baseline	%Change	Current YTD	% Change Current Qtr	kWh/Sq.Ft. Current Qtr
September (S)	31,421	34,650	-9%	31,421		
October (O)	32,837	33,750	-3%	64,258	-6% (Fall)	1.11 (kWh/SqFt)
November (N)	34,661	49,050	-29%	98,919		
December (D)	38,592	48,600	-21%	137,511		
January (J)	37,033	58,050	-36%	174,544		
February (F)	38,195	42,300	-10%	212,739	-25% (Winter)	2.57 (kWh/SqFt)
March (M)	38,195	39,150	-2%	250,934		
April (A)	30,138	31,050	-3%	281,072		
May (M)	32,117	36,900	-13%	313,189	-6% (Spring)	1.74 (kWh/SqFt)
June (J)	38,271	42,545	-10%	351,460		
July (J)	36,486	41,127	-11%	387,946		
August(A)	31,272	41,127	-24%	419,218	-15% (Summer)	1.84 (kWh/SqFt)
Total FY07	419,218	498,300	-16%	419,218	-16% (FY07)	7.27 (kWh/SqFt)



School Eco-Response Team



Energy Cost Offsetting - YTD 3rd Quarter



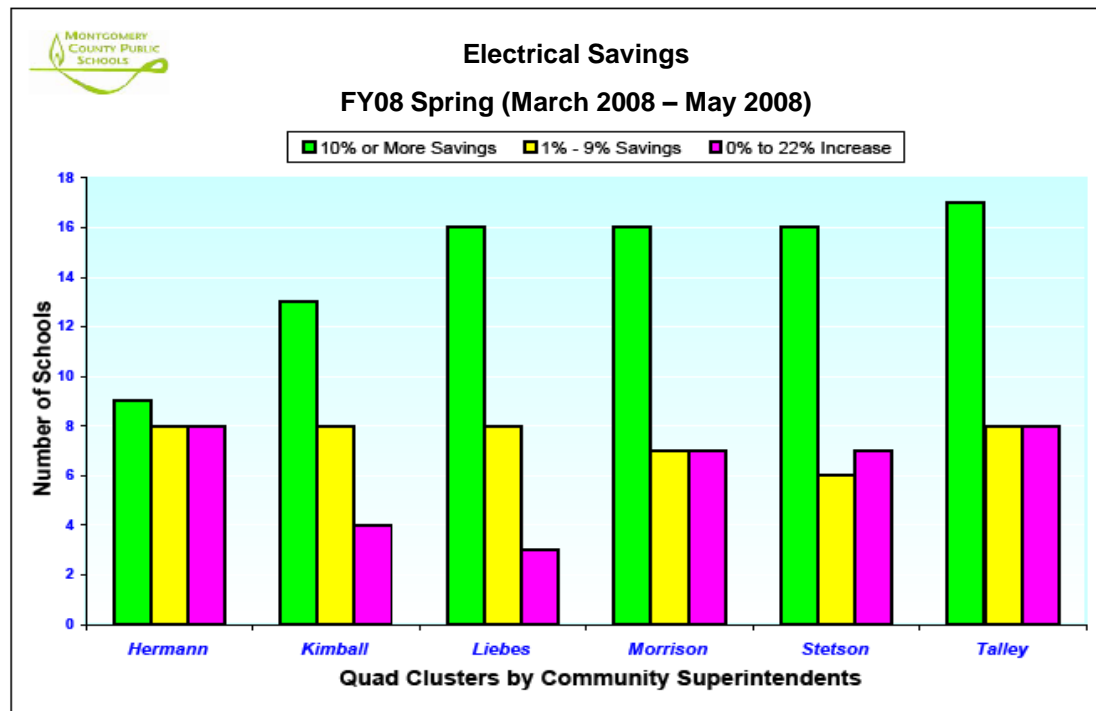
School Eco-Response Team



- Engaging Employees and Management
 - Relationships, Results & Processes
 - Identifying Key Stakeholders
 - SERT Action Plan
 - List of employees identified to participate on team
 - Develop core strategies in check boxes w/contact information preference
 - Provide Training to Employees
 - Tools
 - Teamwork
 - Review incentive programs and increased opportunity for additional funds
 - Transparency
 - Accountability
 - Responsiveness
 - Recognition - Incentives

Results & Recognition

Leadership Data – Positive reinforcement through sharing successful results



Positive Reinforcement

School Eco-Response Team



- Marketing a Successful Energy Conservation Plan
 - SERT Action Plan
 - Promoting Accountability
 - Reaching a Commitment
 - Developing Distribution Lists
 - Focusing on Relationships
 - SERT Activity Packets – Promoting Competition
 - Celebrating Accomplishments
 - Financial Rewards – Promotional Items
 - Certificates of Recognition
 - Providing Leadership Opportunities
 - Lighting
 - Small Appliances
 - Plug Loads

Persuading others to conserve...

- Identify Motivators – Aristotle said that there are three main ways we are persuaded. He called these:



- Ethos is appeal based on the character of the speaker. (Credibility of program – convincing evidence - data)

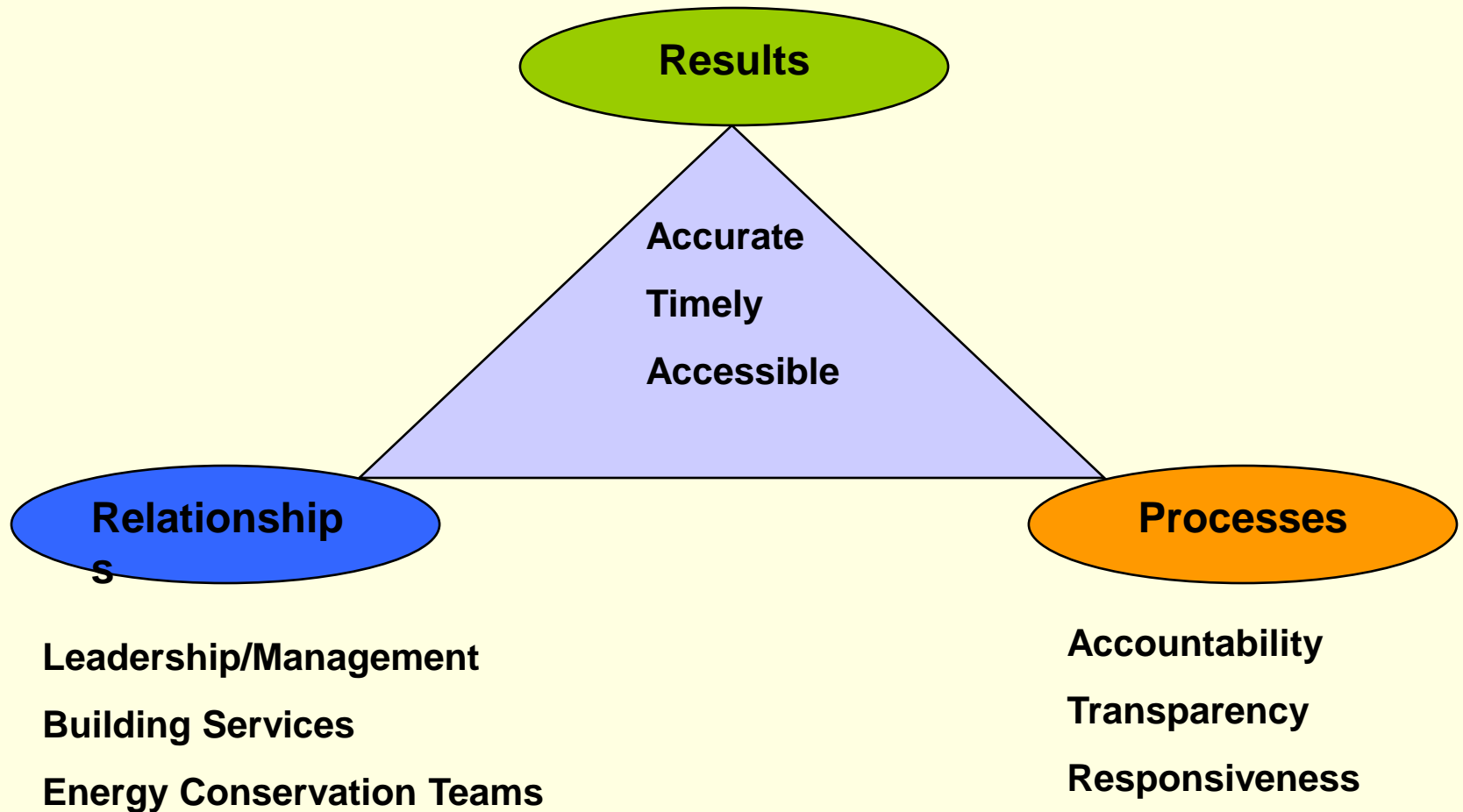


- Pathos is appeal based on emotion. (happy/concerned for environment)



- Logos is appeal based on logic or reason. (clear explanation – cost savings/incentives)

Create your own “magic”



Contact Information

Montgomery County Public Schools
Department of Facilities Management
SERT Program
2096 Gaither Road, Suite 200
Rockville, MD 20850
240-314-1092

E-mail: [Hillary H Kirchman@mcpsmd.org](mailto:Hillary_H_Kirchman@mcpsmd.org)

SERT Program Manager

E-mail: [Arthur B Hayes@mcpsmd.org](mailto:Arthur_B_Hayes@mcpsmd.org)

E-mail: [Jim Stufft@mcpsmd.org](mailto:Jim_Stufft@mcpsmd.org)

SERT Energy Facilitator

...saving energy one school at a time.

Montgomery County School Eco-Response Team (SERT) website

www.montgomeryschoolsmd.org/departments/facilities/greenschoolsfocus/sert.shtm